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BLANCHARD RESERVOIR, CENTRE COUNTY, PENNSYLVANIA. EPA REGION III

Pacific Northwest Environmental Research Laboratory

Prepared for:

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June 1975

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PB 246 868

U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL EUTROPHICATION SURVEY

WORKING PAPER SERIES

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16. ABSTRACT

Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivided according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
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REPORT

ON

BLANCHARD RESERVOIR

CENTRE COUNTY

PENNSYLVANIA

EPA REGION III

WORKING PAPER No. 415

WITH THE COOPERATION OF THE

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

AND THE

PENNSYLVANIA NATIONAL GUARD

JUNE, 1975

CONTENTS

	Page
Foreword	ii
List of Pennsylvania Study Lakes	iv
Lake and Drainage Area Map	v
Sections	
I. Conclusions	1
II. Lake and Drainage Basin Characteristics	4
III. Lake Water Quality Summary	5
IV. Nutrient Loadings	10
V. Literature Reviewed	17
VI. Appendices	18

FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to fresh water lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point-source discharge reduction and non-point source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's fresh water lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by EPA and to augment plans implementation by the states.

ACKNOWLEDGMENT

The staff of the National Eutrophication Survey (Office of Research & Development, U. S. Environmental Protection Agency) expresses sincere appreciation to the Pennsylvania Department of Environmental Resources for professional involvement and to the Pennsylvania National Guard for conducting the tributary sampling phase of the Survey.

Walter A. Lyon, Director of the Bureau of Water Quality Management, Richard M. Boardman, Chief of the Division of Water Quality, and James T. Ulanoski, Aquatic Biologist of the Division of Water Quality, provided invaluable lake documentation and counsel during the Survey, reviewed the preliminary reports, and provided critiques most useful in the preparation of this Working Paper series.

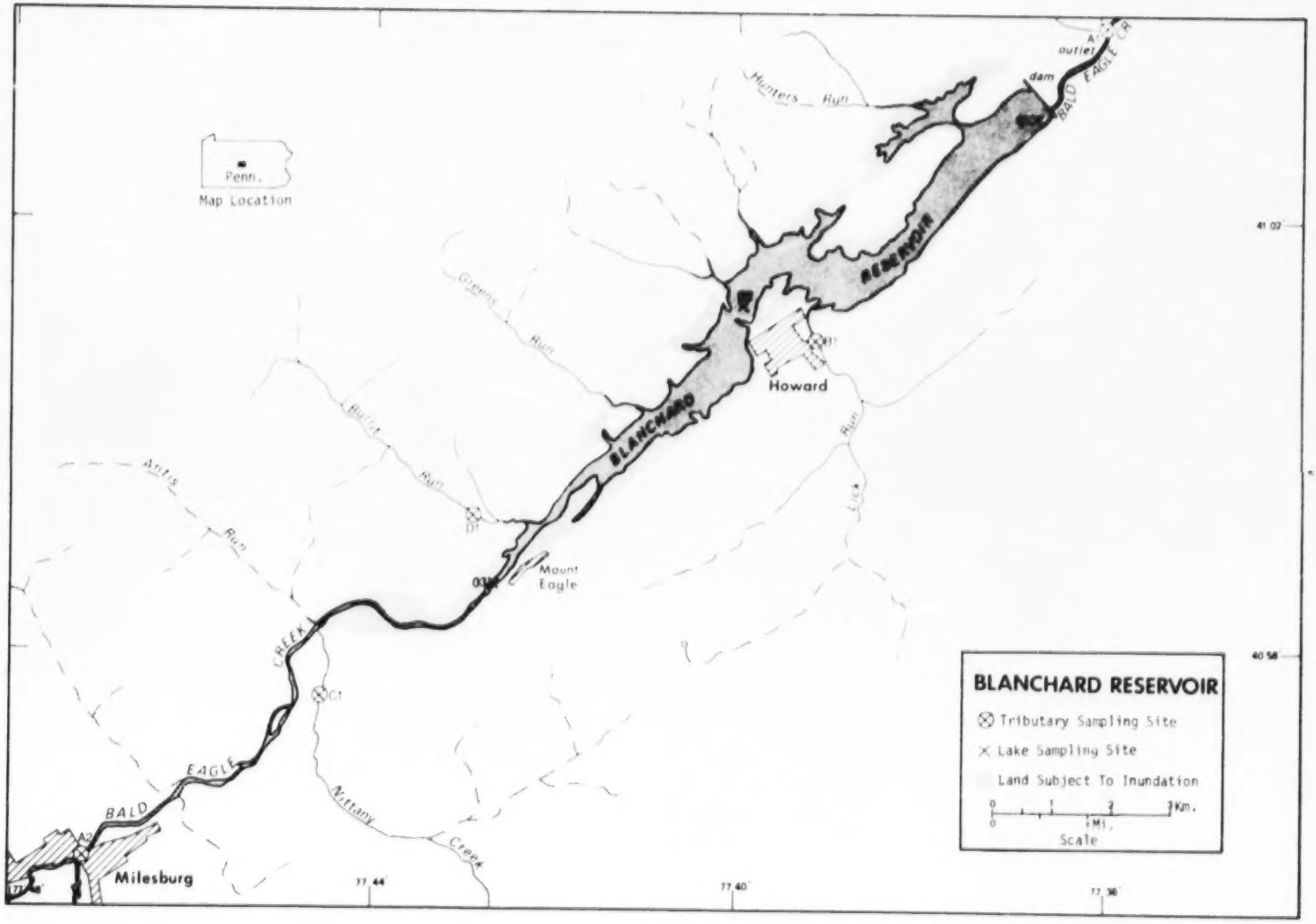
Major General Harry J. Mier, Jr., the Adjutant General of Pennsylvania, and Project Officer Major Ronald E. Wickard, who directed the volunteer efforts of the Pennsylvania National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

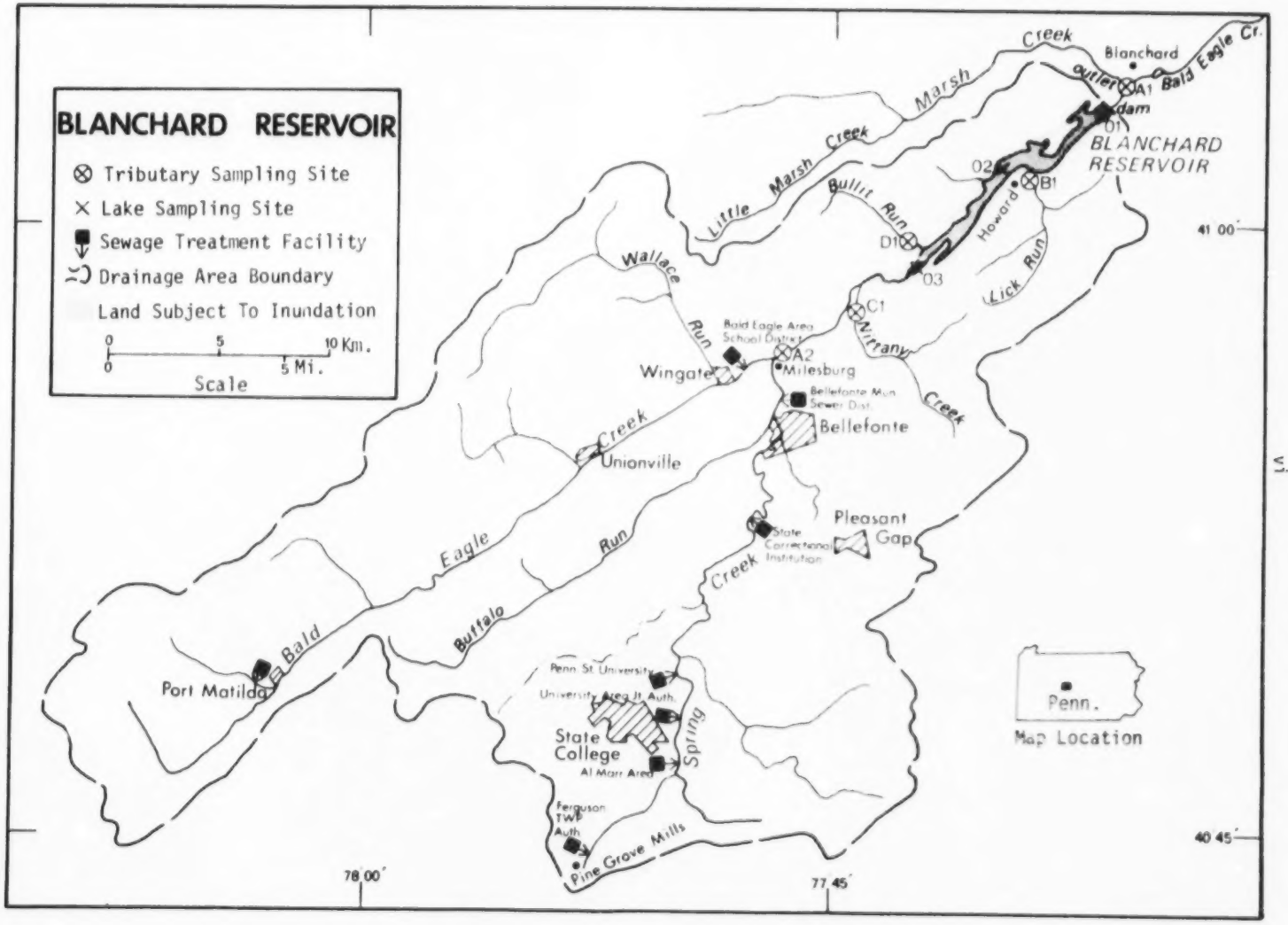
NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF PENNSYLVANIA

LAKE NAME	COUNTY
Allegheny Reservoir	McKean, Warren, PA; Cattarugus, NY
Beaver Run Reservoir	Westmoreland
Beltzville	Carbon
Blanchard Reservoir	Centre
Canadohta	Crawford
Conneaut	Crawford
Conewago (Pinchot)	York
Greenlane	Montgomery
Harveys	Luzerne
Indian	Somerset
Naomi	Monroe
Ontelaunee	Berks
Pocono	Monroe
Pymatuning Reservoir	Crawford, PA; Ashtabula, OH
Shenango River Reservoir	Mercer
Stillwater	Monroe
Wallenpaupack	Pike, Wayne


Penn.
Map Location
Meyers Run
dam
outlet
BALD EAGLE CR
RESERVOIR
BLANCHARD
Howard
Green Run
Bullet Run
Antis Run
Mount Eagle
BALD EAGLE CREEK
Nittany Creek
Milesburg
41 02
40 58
77 44'
77 40'
77 36'
BLANCHARD RESERVOIR
Tributary Sampling Site
Lake Sampling Site
Land Subject To Inundation
0 1 2 3 Km.
0 1 Mi.
Scale


BLANCHARD RESERVOIR
Tributary Sampling Site
Lake Sampling Site
Sewage Treatment Facility
Drainage Area Boundary
Land Subject To Inundation
0 5 10 Km.
0 5 Mi.
Scale
Marsh Creek
Blanchard
outlet
A1
Bald Eagle Cr.
dam
D1
BLANCHARD RESERVOIR
Little Marsh Creek
Bullit Run
02
B1
Howard
D2
03
41 00
Wallace Run
Lick Run
C1
Bald Eagle Area School District
A2
Milesburg
Wingate
Bellefonte Mun. Sewer Dist.
Bellefonte
Nittany Creek
Creek
Unionville
Pleasant Gap
State Correctional Institution
Eagle Run
Buffalo Creek
Bald
Port Matilda
Penn St. University
University Area Jt. Auth.
State College
Al Marr Area
Spring
Ferguson TWP Auth.
Pine Grove Mills
78 00
77 45
40 45
Penn.
Map Location

BLANCHARD RESERVOIR*

STORET NO. 4201

I. CONCLUSIONS

A. Trophic Condition:

Survey data show that Blanchard Reservoir is eutrophic. It ranked fifteenth in overall trophic quality when the 17 Pennsylvania lakes sampled in 1973 were compared using a combination of six water quality parameters**. Fourteen of the water bodies had less median total phosphorus and median inorganic nitrogen, 12 had greater mean Secchi disc transparency, and 11 had less mean chlorophyll a. Marked depression of dissolved oxygen with depth occurred at station 1 in July and October, 1973.

Survey limnologists noted a heavy and widespread algal bloom at station 2 in October; this was the only nuisance condition noted.

B. Rate-Limiting Nutrient:

The algal assay results show that Blanchard Reservoir was phosphorus limited at the time the assay sample was collected (04/13/73). The lake data indicate phosphorus limitation at the other sampling times as well.

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* Table of metric conversions--Appendix A.

** See Appendix B.

C. Nutrient Controllability:

1. Point sources--During the sampling year, Blanchard Reservoir received a total phosphorus load at a rate nearly seven times (see page 16) that proposed to produce a eutrophic body of water (Vollenweider and Dillon, 1974). However, Vollenweider's model probably does not apply to water bodies with short hydraulic retention times, and the mean hydraulic retention time of Blanchard Reservoir is only 11 days. Nonetheless, the existing trophic condition of the reservoir is evidence of excessive nutrient loads.

It is calculated that the point sources considered in this study contribute 96% of the total phosphorus load reaching the reservoir (the waste treatment plants serving Pennsylvania State University and the University Area Joint Authority collectively contribute 80.5% of the total). Phosphorus removal at the 80% level would reduce the present loading rate of 9.66 $g/m^2/yr$ to 2.25 $g/m^2/yr$. While this rate would still exceed the eutrophic rate of 1.40 $g/m^2/yr$, in view of the questionable applicability of Vollenweider's model to water bodies with short hydraulic retention times, it is likely that 80% phosphorus removal would result in a significant improvement in the trophic condition of the reservoir.

2. Non-point sources--The mean annual phosphorus load from non-point sources was 4% of the total reaching the reservoir. The gaged tributaries contributed a total of about 3.4% and ranged from <0.1% in Bullit Run to 3.1% in Bald Eagle Creek. The ungaged tributaries were estimated to have contributed approximately 0.4% of the total.

The phosphorus exports of the sampled streams were exceptionally low (see page 15) as compared to Pennsylvania streams studied elsewhere.

II. LAKE AND DRAINAGE BASIN CHARACTERISTICS

A. Lake Morphometry†:

1. Surface area: 7.00 kilometers^2.
2. Mean depth: 1.6 meters.
3. Maximum depth: >9.4 meters.
4. Volume: 11.431 x 10^6 m^3.
5. Mean hydraulic retention time: 11 days.

B. Tributary and Outlet:
(See Appendix C for flow data)

1. Tributaries -

Name	Drainage area (km^2)*	Mean flow (m^3/sec)*
Bald Eagle Creek	686.3	10.3
Lick Run	32.1	0.2
Nittany Creek	51.8	0.1
Bullit Run	15.8	0.1
Minor tributaries & immediate drainage -	85.0	1.3
Totals	871.0	12.0

2. Outlet -

Bald Eagle Creek	878.0**	12.0**

C. Precipitation***:

1. Year of sampling: 92.9 centimeters.
2. Mean annual: 96.8 centimeters.

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† Ulanoski, 1975.
* For limits of accuracy, see Working Paper No. 175, "...Survey Methods, 1973-1976".
** Includes area of lake; outflow adjusted to equal sum of inflows.
*** See Working Paper No. 175.

III. LAKE WATER QUALITY SUMMARY

Blanchard Reservoir was sampled three times during the open-water season of 1973 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from three stations on the lake (two in October) and from a number of depths at each station (see map, page v). During each visit, a single depth-integrated (4.6 m or near bottom to surface) sample was composited from the stations for phytoplankton identification and enumeration; and during the first visit, a single 18.9-liter depth-integrated sample was composited for algal assays. Also each time, a depth-integrated sample was collected from each of the stations for chlorophyll a analysis. The maximum depths sampled were 9.4 meters at station 1, 5.2 meters at station 2, and 1.5 meters at station 3 (too shallow to sample in October).

The lake sampling results are presented in full in Appendix D and are summarized in the following table.

A. SUMMARY OF PHYSICAL AND CHEMICAL CHARACTERISTICS FOR BLANCHARD RESERVOIR
STORET CODE 4201

PARAMETER	1ST SAMPLING (4/13/73) 3 SITES RANGE	MEAN	MEDIAN	2ND SAMPLING (7/24/73) 3 SITES RANGE	MEAN	MEDIAN	3RD SAMPLING (10/ 2/73) 2 SITES RANGE	MEAN	MEDIAN
TEMP (C)	7.7 - 9.4	8.6	8.2	19.0 - 26.5	24.0	25.2	16.6 - 18.2	17.6	17.6
DISS OXY (MG/L)	10.9 - 11.8	11.3	11.3	0.1 - 13.1	8.1	8.6	3.2 - 9.2	6.9	7.8
CNDCTVY (MCROMO)	220. - 280.	245.	248.	266. - 355.	298.	288.	290. - 328.	308.	308.
PH (STAND UNITS)	7.0 - 8.0	7.7	7.8	7.4 - 9.0	8.4	8.6	7.1 - 8.1	7.6	7.5
TOT ALK (MG/L)	75. - 91.	84.	88.	86. - 138.	104.	95.	134. - 153.	141.	141.
TOT P (MG/L)	0.062 - 0.074	0.068	0.068	0.032 - 0.156	0.062	0.055	0.039 - 0.357	0.152	0.052
ORTHO P (MG/L)	0.058 - 0.071	0.063	0.064	0.009 - 0.105	0.024	0.012	0.010 - 0.228	0.079	0.032
NO2+NO3 (MG/L)	1.200 - 1.400	1.333	1.400	0.500 - 2.100	0.833	0.590	0.670 - 2.280	1.194	0.920
AMMONIA (MG/L)	0.030 - 0.070	0.051	0.050	0.060 - 0.280	0.134	0.120	0.090 - 0.430	0.210	0.130
KJEL N (MG/L)	0.200 - 0.400	0.233	0.200	0.600 - 1.200	0.780	0.700	0.400 - 2.200	0.960	0.800
INORG N (MG/L)	1.250 - 1.470	1.384	1.430	0.580 - 2.220	0.967	0.715	0.800 - 2.370	1.404	1.350
TOTAL N (MG/L)	1.400 - 1.800	1.567	1.600	1.110 - 2.700	1.613	1.480	1.280 - 3.520	2.154	1.720
CHLRPYL A (UG/L)	1.3 - 5.5	2.9	1.9	8.3 - 12.9	10.3	10.7	5.6 - 76.2	40.9	40.9
SECCHI (METERS)	0.6 - 1.1	0.8	0.6	1.3 - 1.8	1.5	1.5	0.7 - 2.2	1.4	1.4

B. Biological characteristics:

1. Phytoplankton -

Sampling Date	Dominant Genera	Algal Units per ml
04/13/73	1. Cryptomonas	212
	2. Flagellates	112
	3. Synedra	75
	4. Fragilaria	62
	5. Navicula	49
	Other genera	40
	Total	550
07/24/73	1. Oocystis	5,439
	2. Coelastrum	1,389
	3. Scenedesmus	739
	4. Fragilaria	347
	5. Flagellates	254
	Other genera	906
	Total	9,074
10/02/73	1. Melosira	424
	2. Fragilaria	346
	3. Cryptomonas	26
	4. Flagellates	26
	5. Oocystis	19
	Other genera	60
	Total	901

2. Chlorophyll a -

Sampling Date	Station Number	Chlorophyll a (µg/l)
04/13/73	01	5.5
	02	1.9
	03	1.3
07/24/73	01	8.3
	02	10.7
	03	12.0
10/02/73	01	5.6
	02	76.2
	03	-

C. Limiting Nutrient Study:

1. Autoclaved, filtered, and nutrient spiked -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.044	1.054	10.0
0.050 P	0.094	1.054	24.6
0.050 P + 1.0 N	0.094	2.054	21.2
1.0 N	0.044	2.054	9.9

2. Discussion -

The control yield of the assay alga, Selenastrum capricornutum, indicates that the potential primary productivity of Blanchard Reservoir was quite high at the time the algal assay sample was collected (04/13/73). The assay results also indicate that phosphorus was growth-limiting at the time of sample collection. There was no significant increase in algal biomass yield with the addition of only nitrogen, but

the addition of phosphorus increased the yield to more than double that of the control.

The lake data also indicate phosphorus limitation. The mean inorganic nitrogen to orthophosphorus ratios were 18 to 1 or greater at all sampling times, and thus phosphorus limitation would be expected.

IV. NUTRIENT LOADINGS
(See Appendix E for data)

For the determination of nutrient loadings, the Pennsylvania National Guard collected monthly near-surface grab samples from each of the tributary sites indicated on the map (page vi), except for the high runoff months of February and March when two samples were collected. Sampling was begun in May, 1973, and was completed in April, 1974.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the Pennsylvania District Office of the U.S. Geological Survey for the tributary sites nearest the lake.

Except for station A-2, nutrient loads for sampled tributaries were determined by using a modification of a U.S. Geological Survey computer program for calculating stream loadings*. The phosphorus loading for station A-2 on Bald Eagle Creek was less than the total phosphorus loading from the point sources upstream. However, it was assumed that all the phosphorus reached the water body during the sampling year, and the following method was used to determine the annual background loading. The nutrient loads, in $kg/km^2/yr$, at stations B-1, C-1, and D-1 were averaged and the means were multiplied by the drainage area of A-2 in km^2. Otherwise, nutrient loads shown are those measured minus point-source loads, if any.

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* See Working Paper No. 175.

Nutrient loads for unsampled "minor tributaries and immediate drainage" ("ZZ" of U.S.G.S.) were estimated using the means of the nutrient loads, in $kg/km^2/year$, at stations B-1, C-1, and D-1 and multiplying the means by the ZZ area in km^2.

The operators of the Bald Eagle (Wingate), Pennsylvania State University, State Correctional Institute (S.C.I.) at Rockview, University Area Joint Authority, and Pine Grove Mills wastewater treatment plants provided monthly effluent samples and corresponding flow data. The Bellefonte Municipal Sewer Authority and Al Marr Acres did not participate in the sampling program, and nutrient loads were estimated at 1.134 kg P and 3.401 kg N/capita/year. The loads for the Port Matilda untreated wastes were estimated at 1.587 kg P and 4.263 kg N/capita/year, and the septic tank loads from Milesburg and Unionville were estimated at 0.1134 kg P and 4.263 kg N/capita/year.

A. Waste Sources:

1. Known muncipal† -

Name	Pop. Served	Treatment	Mean Flow (m^3/d)	Receiving Water
Bald Eagle (Wingate)	2,000	pond	62.3	Bald Eagle Creek
Penn. State University	40,000	trickling filter	11,196.1	Spring Creek
S.C.I. at Rockview	700	trickling filter	467.9	Spring Creek
Univ. Area Jt. Auth.	30,000	tertiary	9,978.9	Spring Creek
Pine Grove Mills	1,200	ext. aer.	102.5	Slab Cabin Creek
Bellefonte Municipal Sewer Auth.	7,000	act. sludge	2,649.5*	Spring Creek
Port Matilda	700	none	265.0*	Bald Eagle Creek
Al Marr Acres	140	pond	53.0*	Spring Creek
Milesburg	1,196	septic tanks	452.7*	Bald Eagle Creek
Unionville	375	septic tanks	141.9*	Bald Eagle Creek

2. Known industrial - None

† Ulanoski, 1975.
* Estimated at 0.3785 m^3/capita/day.

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

Source	kg P/ yr	% of total
a. Tributaries (non-point load) -		
Bald Eagle Creek	2,060	3.1
Lick Run	165	0.2
Nittany Creek	100	0.1
Bullit Run	30	<0.1
b. Minor tributaries & immediate drainage (non-point load) -	255	0.4
c. Known municipal STP's -		
Bald Eagle (Wingate)	70	0.1
Penn. State University	24,760	36.6
S.C.I. at Rockview	490	0.7
Univ. Area Jt. Auth.	29,710	43.9
Pine Grove Mills	420	0.6
Bellefonte Mun. Sewer Auth.	7,940	11.7
Port Matilda	1,110	1.6
Al Marr Acres	160	0.2
Milesburg	135	0.2
Unionville	45	<0.1
d. Septic tanks* -	60	0.1
e. Known industrial - None	-	-
f. Direct precipitation** -	125	0.2
Total	67,635	100.0

2. Outputs -

Lake outlet - Bald Eagle Creek 35,745

3. Net annual P accumulation - 31,890 kg.

* Estimate based on 205 lakeshore dwellings; see Working Paper No. 175.
** See Working Paper No. 175.

C. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

Source	kg N/ yr	% of total
a. Tributaries (non-point load) -		
Bald Eagle Creek	168,145	42.6
Lick Run	14,940	3.8
Nittany Creek	9,215	2.3
Bullit Run	1,455	0.4
b. Minor tributaries & immediate drainage (non-point load) -	20,825	5.3
c. Known municipal STP's -		
Bald Eagle (Wingate)	120	<0.1
Penn. State University	68,955	17.5
S.C.I. at Rockview	2,560	0.6
Univ. Area Jt. Auth.	64,420	16.3
Pine Grove Mills	695	0.2
Bellefonte Mun. Sewer Auth.	23,805	6.0
Port Matilda	2,985	0.8
Al Marr Acres	475	0.1
Milesburg	5,100	1.3
Unionville	1,600	0.4
d. Septic tanks* -	2,185	0.5
e. Known industrial - None	-	-
f. Direct precipitation** -	7,555	1.9
Total	395,035	100.0

2. Outputs -

Lake outlet - Bald Eagle Creek 794,465

3. Net annual N loss - 399,430 kg

* Estimate based on 205 lakeshore dwellings; see Working Paper No. 175.
** See Working Paper No. 175.

D. Mean Annual Non-point Nutrient Export by Subdrainage Area:

Tributary	kg P/km^2/yr	kg N/km^2/yr
Bald Eagle Creek (estimated)	3	245
Lick Run	5	465
Nittany Creek	2	178
Bullit Run	2	92

E. Yearly Loading Rates:

In the following table, the existing phosphorus loading rates are compared to those proposed by Vollenweider (Vollenweider and Dillon, 1974). Essentially, his "dangerous" rate is the rate at which the receiving water would become eutrophic or remain eutrophic; his "permissible" rate is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A mesotrophic rate would be considered one between "dangerous" and "permissible".

Note that Vollenweider's model may not be applicable to water bodies with short hydraulic retention times.

	Total Phosphorus		Total Nitrogen	
	Total	Accumulated	Total	Accumulated
grams/m^2/yr	9.66	4.56	56.4	loss*

Vollenweider loading rates for phosphorus ($g/m^2/yr$) based on mean depth and mean hydraulic retention time of Blanchard Reservoir:

"Dangerous" (eutrophic rate)	1.40
"Permissible" (oligotrophic rate)	0.70

* There was an apparent loss of nitrogen during the sampling year. This may have been due to nitrogen fixation in the lake, solubilization of previously sedimented nitrogen, recharge with nitrogen-rich ground water, unknown and unsampled point sources discharging directly to the lake, or underestimation of the nitrogen loads from point sources. Whatever the cause, a similar nitrogen loss has occurred at Shagawa Lake, Minnesota, which has been intensively studied by EPA's National Eutrophication and Lake Restoration Branch.

V. LITERATURE REVIEWED

Chief, Howard Fire Dept., 1975. Personal communication (Howard STP outfall). Howard.

Ulanoski, James, 1975. Personal communication (lake morphometry). PA Dept. of Env. Resources, Harrisburg.

Vollenweider, R. A., and P. J. Dillon, 1974. The application of the phosphorus loading concept to eutrophication research. Natl. Res. Council of Canada Publ. No. 13690, Canada Centre for Inland Waters, Burlington, Ontario.

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x 8.107×10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
1	4224	LAKE NAOMI	445
2	4220	BELTZVILLE DAM	423
3	4222	HARVEY'S LAKE	413
4	4228	STILLWATER LAKE	401
5	4227	POCONO LAKE	389
6	4223	INDIAN LAKE	388
7	3641	ALLEGHENY RESERVOIR	385
8	4229	LAKE WALLENPAUPACK	371
9	4221	CANADOHTA LAKE	369
10	4219	BEAVER RUN RESERVOIR	360
11	4204	CONNEAUT LAKE	307
12	4226	PINCHOT LAKE	256
13	4213	PYMATUNING RESERVOIR	206
14	4216	SHENANGO RIVER RESERVOIR	157
15	4225	ONTELAUNEE DAM	101
16	4201	BLANCHARD RESERVOIR	85
17	4207	GREENLANE DAM	53

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS P	INDEX NO
3641	ALLEGHENY RESERVOIR	56 (9)	38 (6)	63 (10)	100 (16)	69 (11)	59 (8)	385
4201	BLANCHARD RESERVOIR	13 (2)	13 (2)	25 (4)	31 (5)	3 (0)	0 (0)	85
4204	CONNEAUT LAKE	44 (7)	63 (10)	69 (11)	56 (9)	34 (5)	41 (6)	307
4207	GREENLANE DAM	6 (1)	6 (1)	19 (3)	13 (2)	3 (0)	6 (1)	53
4213	PYMATUNING RESERVOIR	0 (0)	72 (11)	6 (1)	0 (0)	100 (16)	28 (4)	206
4216	SHENANGO RIVER RESERVOIR	19 (3)	44 (7)	13 (2)	6 (1)	47 (7)	28 (4)	157
4219	BEAVER RUN RESERVOIR	94 (15)	19 (3)	88 (14)	81 (13)	19 (2)	59 (8)	360
4220	BELTZVILLE DAM	88 (14)	25 (4)	94 (15)	94 (15)	34 (5)	88 (13)	423
4221	CANADOHTA LAKE	50 (8)	97 (15)	56 (9)	19 (3)	59 (9)	88 (13)	369
4222	HARVEY'S LAKE	63 (10)	81 (13)	100 (16)	63 (10)	47 (7)	59 (8)	413
4223	INDIAN LAKE	100 (16)	31 (5)	75 (12)	75 (12)	19 (2)	88 (13)	388
4224	LAKE NAOMI	81 (13)	88 (14)	44 (7)	69 (11)	88 (14)	75 (12)	445
4225	ONTELAUNEE DAM	25 (4)	0 (0)	0 (0)	44 (7)	19 (2)	13 (2)	101
4226	PINCHOT LAKE	31 (5)	56 (9)	31 (5)	38 (6)	81 (13)	19 (3)	256
4227	POCONO LAKE	38 (6)	97 (15)	50 (8)	88 (14)	75 (12)	41 (6)	389
4228	STILLWATER LAKE	72 (11)	72 (11)	38 (6)	25 (4)	94 (15)	100 (16)	401
4229	LAKE WALLENPAUPACK	72 (11)	50 (8)	81 (13)	50 (8)	59 (9)	59 (8)	371

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS P
3641	ALLEGHENY RESERVOIR	0.016	0.380	414.250	3.700	13.800	0.006
4201	BLANCHARD RESERVOIR	0.064	1.300	453.143	15.187	14.900	0.046
4204	CONNEAUT LAKE	0.023	0.185	402.000	7.567	14.600	0.007
4207	GREENLANE DAM	0.066	1.475	460.222	24.011	14.900	0.020
4213	PYMATUNING RESERVOIR	0.070	0.180	467.750	56.333	7.700	0.008
4216	SHENANGO RIVER RESERVOIR	0.058	0.340	463.555	26.800	14.500	0.008
4219	BEAVER RUN RESERVOIR	0.009	0.835	384.833	5.183	14.800	0.006
4220	BELTZVILLE DAM	0.010	0.815	362.444	4.856	14.600	0.005
4221	CANADOHTA LAKE	0.020	0.130	436.000	19.167	14.100	0.005
4222	HARVEY'S LAKE	0.015	0.160	338.000	5.967	14.500	0.006
4223	INDIAN LAKE	0.008	0.520	400.222	5.211	14.800	0.005
4224	LAKE NAOMI	0.014	0.135	443.333	5.533	8.000	0.005
4225	ONTELAUNEE DAM	0.040	2.150	470.667	11.783	14.800	0.011
4226	PINCHOT LAKE	0.027	0.245	453.000	13.950	11.500	0.008
4227	POCONO LAKE	0.024	0.130	438.800	4.980	13.200	0.007
4228	STILLWATER LAKE	0.015	0.180	449.000	18.233	7.900	0.004
4229	LAKE WALLENPAUPACK	0.015	0.250	394.583	9.617	14.100	0.006

TRIBUTARY FLOW INFORMATION FOR PENNSYLVANIA 1/27/75

LAKE CODE 4201 BLANCHARD RESERVOIR

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 878.0

TRIBUTARY	SUB-DRAINAGE AREA(SQ KM)	NORMALIZED FLOWS(CMS) JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
4201A1	878.0	9.57	14.73	24.55	21.92	15.35	9.37	8.16	5.83	5.41	6.34	9.37	10.45	11.73
4201A2	846.3	8.04	12.41	21.55	19.74	13.54	9.26	6.57	5.49	4.53	5.41	7.53	8.83	10.26
4201B1	32.1	0.16	0.22	0.40	0.40	0.28	0.20	0.11	0.08	0.07	0.07	0.09	0.12	0.18
4201C1	51.8	0.10	0.14	0.25	0.25	0.18	0.13	0.07	0.05	0.04	0.04	0.06	0.08	0.12
4201D1	15.8	0.03	0.07	0.12	0.12	0.09	0.07	0.04	0.03	0.03	0.03	0.03	0.05	0.06
4201Z2	94.5	1.03	1.61	2.69	2.41	1.70	1.02	0.91	0.65	0.59	0.71	1.02	1.16	1.29

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 878.0
SUM OF SUB-DRAINAGE AREAS = 880.6

TOTAL FLOW IN = 143.23
TOTAL FLOW OUT = 141.07

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
4201A1	5	73	18.72	19	15.23				
	6	73	15.15	10	19.11				
	7	73	7.93	14	6.37				
	8	73	6.09	11	4.76				
	9	73	9.63	9	4.22				
	10	73	7.67	13	6.57				
	11	73	12.26	16	20.78				
	12	73	21.95	15	15.40				
	1	74	23.05	12	10.36				
	2	74	13.71	9	11.92				
	3	74	16.14	10	26.16				
	4	74	22.53	7	56.35				
4201A2	5	73	15.32	19	11.69				
	6	73	13.54	10	16.14				
	7	73	6.88	14	5.15				
	8	73	5.01	11	6.00				
	9	73	4.59	9	4.05				
	10	73	4.25	13	3.54				
	11	73	6.51	16	4.30				
	12	73	19.40	15	12.01				
	1	74	28.32	12	12.80				
	2	74	12.09	9	9.49				
	3	74	22.65	10	62.01				
	4	74	28.32	7	29.17				

22

TRIBUTARY FLOW INFORMATION FOR PENNSYLVANIA 1/27/75

LAKE CODE 4201 BLANCHARD RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
420101	5	73	0.40	19	0.31				
	6	73	0.40	16	0.54				
	7	73	0.15	14	0.14				
	8	73	0.10	11	0.14				
	9	73	0.10	9	0.09				
	10	73	0.09	13	0.08				
	11	73	0.09	10	0.08				
	12	73	0.34	15	0.22				
	1	74	0.51	12	0.24				
	2	74	0.28	9	0.28				
	3	74	0.40	10	1.30				
	4	74	0.82	7	1.39				
420102	5	73	0.23	19	0.19				
	6	73	0.24	10	0.34				
	7	73	0.10	14	0.09				
	8	73	0.07	11	0.09				
	9	73	0.07	9	0.06				
	10	73	0.07	13	0.06				
	11	73	0.06	10	0.06				
	12	73	0.21	15	0.14				
	1	74	0.23	12	0.15				
	2	74	0.18	9	0.18				
	3	74	0.24	10	0.65				
	4	74	0.45	7	0.79				
420103	5	73	0.12	19	0.10				
	6	73	0.12	10	0.16				
	7	73	0.05	14	0.05				
	8	73	0.04	11	0.05				
	9	73	0.04	9	0.03				
	10	73	0.03	13	0.03				
	11	73	0.03	10	0.03				
	12	73	0.10	15	0.07				
	1	74	0.14	12	0.08				
	2	74	0.09	9	0.09				
	3	74	0.12	10	0.31				
	4	74	0.22	7	0.37				
420122	5	73	2.07	19	1.67				
	6	73	1.67	10	2.10				
	7	73	0.88	14	0.71				
	8	73	0.68	11	0.51				
	9	73	1.05	9	0.45				
	10	73	0.85	13	0.74				
	11	73	1.36	10	2.29				
	12	73	2.41	15	1.73				
	1	74	2.52	12	1.13				
	2	74	1.50	9	1.30				
	3	74	1.79	10	2.89				
	4	74	2.49	7	6.20				

APPENDIX D

PHYSICAL and CHEMICAL DATA

STORET RETRIEVAL DATE 75/01/27

420101
41 02 44.0 077 36 35.0
BLANCHARD RESERVOIR
42027 PENNSYLVANIA

11EPALES
3

2111202
0035 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/04/13	11 00	0000	9.4		24	240	7.80	88	0.070	0.200	1.400	0.059
	11 00	0008	9.4	10.9		248	7.90	88	0.060	0.300	1.400	0.058
	11 00	0015	9.4	11.0		250	8.00	89	0.060	0.200	1.400	0.059
	11 00	0031	9.4	11.0		250	7.80	89	0.060	0.200	1.400	0.059
73/07/24	11 15	0000	25.6	7.9	72	273	8.70	91	0.120	1.200	0.560	0.009
	11 15	0005	25.4			280						
	11 15	0010	25.0	7.0		288	8.30	96	0.140	0.600	0.680	0.012
	11 15	0016	23.6	0.4		328	7.50	118	0.250	0.700	1.100	0.021
	11 15	0020	21.7			345						
	11 15	0025	19.8			317						
	11 15	0028	19.0	0.1		303	7.40	130	0.280	0.600	1.200	0.035
73/10/02	13 35	0000	18.2	7.8	86	290	7.50	134	0.130	0.900	0.670	0.010
	13 35	0010	17.9	5.6		298	7.20	136	0.270	0.500	0.780	0.020
	13 35	0020	17.6	3.2		308	7.10	141	0.430	0.800	0.920	0.032

29

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/04/13	11 00	0000	0.069	5.5
	11 00	0008	0.067	
	11 00	0015	0.062	
	11 00	0031	0.067	
73/07/24	11 15	0000	0.032	6.3
	11 15	0010	0.049	
	11 15	0016	0.056	
	11 15	0028	0.047	
73/10/02	13 35	0000	0.051	5.6
	13 35	0010	0.039	
	13 35	0020	0.052	

STORET RETRIEVAL DATE 75/01/21

420102
41 01 05.0 077 39 59.0
BLANCHARD RESERVOIR
42027 PENNSYLVANIA

11EPALES 2111202
3 0019 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/04/13	11 50	0000	8.2		24	220	7.70	75	0.050	0.200	1.200	0.064
	11 50	0008	8.2	11.6		230	8.00	75	0.050	0.200	1.200	0.065
	11 50	0015	8.2	11.6		220	7.80	75	0.050	0.200K	1.200	0.064
73/07/24	12 10	0000	26.4	12.8	50	266	8.90	86	0.080	0.900	0.500	0.009
	12 10	0005	26.1	10.0		268	8.80	90	0.090	0.600	0.510	0.012
	12 10	0012	25.2	8.7		288	8.60	102	0.130	0.700	0.620	0.013
	12 10	0017	22.2	8.5		355	8.20	138	0.120	0.600	2.100	0.105
73/10/02	14 05	0000	17.6	8.6	28	318	8.10	143	0.130	2.200	1.320	0.105
	14 05	0010	16.6	9.2		328	7.90	153	0.090	0.400	2.280	0.228

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/04/13	11 50	0000	0.068	1.9
	11 50	0008	0.068	
	11 50	0015	0.066	
73/07/24	12 10	0000	0.038	10.7
	12 10	0005	0.060	
	12 10	0012	0.056	
	12 10	0017	0.156	
73/10/02	14 05	0000	0.357	76.2
	14 05	0010	0.261	

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/01/27

420103
40 58 50.0 077 42 20.0
BLANCHARD RESERVOIR
42027 PENNSYLVANIA

11EPALES 2111202
3 0008 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/04/13	12 12	0000	7.8		44	270	7.00	90	0.030	0.200K	1.400	0.071
	12 12	0004	7.7	11.8		280	7.60	91	0.030	0.400	1.400	0.070
73/07/24	12 50	0000	26.5	13.1		277	9.00	94	0.060	1.000	0.520	0.012
	12 50	0005	26.1	12.7		281	8.90	94	0.070	0.900	0.540	0.012

27

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/04/13	12 12	0000	0.071	1.3
	12 12	0004	0.074	
73/07/24	12 50	0000	0.055	12.0
	12 50	0005	0.073	

K VALUE KNOWN TO BE
LESS THAN INDICATED

APPENDIX E

TRIBUTARY and WASTEWATER TREATMENT PLANT DATA

STORET RETRIEVAL DATE 75/02/03

4201A1
41 03 29.0 077 35 46.0
BALD EAGLE CREEK
42079 7.5 BEECH CREEK
O/BLANCHARD RES
BANK 100 FT UP FROM BRDG .2 NW EAGLEVILL
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/05/14	10	15	0.930	2.400	0.060	0.008	0.055
73/06/10	10	45	0.870	1.500	0.130	0.031	0.045
73/07/15	09	30	0.990	1.600	0.132	0.030	0.105
73/08/12	09	05	0.880	0.730	0.180	0.030	0.075
73/09/09	10	45	0.640	0.750	0.170	0.014	0.045
73/10/14	12	00	0.890	0.650	0.037	0.025	0.045
73/11/11	10	15	1.300	0.575	0.136	0.060	0.105
73/12/16	09	05	1.260	0.800	0.056	0.068	0.090
74/01/06	10	00	1.340	0.300	0.026	0.044	0.070
74/02/10	09	30	1.680	0.400	0.020	0.070	0.090
74/02/23	11	00	1.900	0.700	0.020	0.075	0.125
74/03/10	11	45	1.180	0.850	0.070	0.045	0.193
74/03/23	08	45	2.800	0.500	0.030	0.190	0.240
	10	15	1.400	0.400	0.030	0.045	0.095
74/04/07	09	15	1.100	0.800	0.050	0.040	0.045

29

STORET RETRIEVAL DATE 75/02/03

4201A2
40 56 35.0 077 47 14.0
BALD EAGLE CREEK
42 1.5 BELLEFONTE
1/BLANCHARD RES
RD 14052 BRDG IN MILESBURG
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/05/14	09 00		2.040	0.320	0.066	0.120	0.150
73/06/13	08 00		2.000	0.850	0.052	0.115	0.195
73/07/15	08 20		1.960	1.800	0.061	0.115	0.175
73/08/12	08 05		1.920	0.100K	0.046	0.150	0.210
73/09/09	09 40		2.300	0.540	0.066	0.198	0.250
73/10/14	10 45		2.300	0.750	0.075	0.250	0.310
73/11/11	09 05		2.200	0.300	0.028	0.252	0.280
73/12/16	09 40		1.840	0.300	0.044	0.140	0.170
74/01/06	09 00		2.100	0.400	0.064	0.132	0.165
74/02/10	10 15		3.000	1.000	0.055	0.195	0.230
74/02/23	10 15		0.588	0.700	0.040	0.005	0.040
74/03/10	10 55		1.400	1.900	0.105	0.070	0.210
74/03/23	09 00		0.440	0.200	0.010	0.015	0.020
74/04/07	08 15		1.920	1.600	0.065	0.105	0.155

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/03

420101
41 00 50.6 077 39 06.0
LICK RUN
42 7.5 HOWARD
T/BLANCHARD RES
SEC RD BRDG IN HOWARD
TIEPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/05/19	09 45		1.800	1.200	0.062	0.009	0.015
73/06/10	08 50		1.540	2.900	0.168	0.016	0.030
73/07/15	09 05		2.200	0.960	0.052	0.019	0.080
73/08/12	08 45		2.500	0.150	0.014	0.005K	0.015
73/09/09	10 25		2.400	0.210	0.021	0.013	0.015
73/10/14	11 40		2.200	0.750	0.031	0.023	0.030
73/11/11	08 45		2.300	0.150	0.012	0.012	0.025
73/12/16	08 45		1.430	0.400	0.016	0.016	0.016
74/01/06	09 35		1.800	0.300	0.016	0.012	0.015
74/02/10	09 00		2.080	1.100	0.040	0.010	0.010
74/02/23	10 45		1.760	0.550	0.020	0.005	0.025
74/03/10	11 30		0.950	1.300	0.070	0.025	0.070
74/03/23	09 30		1.680	0.200	0.005	0.010	0.015
74/04/07	09 00		1.360	0.300	0.010	0.015	0.025

13

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/03

42

4201C1
40 57 50.0 077 44 35.0
NITTANY CREEK
42 7.5 MINGOVILLE
T/BLANCHARD RES
US HWY 220 BRDG .8 MI NE OF I 80
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/05/19	09 15		1.780	0.227	0.021	0.005K	0.010
73/06/10	08 15		2.000	1.100	0.042	0.011	0.040
73/07/15	08 40		1.920	0.940	0.030	0.008	0.055
73/08/12	08 20		1.940	0.540	0.032	0.010	0.010
73/09/09	09 50		1.940	0.210	0.039	0.009	0.020
73/10/14	11 10		2.120	0.850	0.040	0.011	0.011
73/11/11	09 30		2.100	0.100K	0.012	0.008	0.020
74/01/06	09 15		1.920	0.400	0.008	0.008	0.025
74/02/10	10 00		2.000	1.100	0.025	0.005K	0.030
74/02/23	10 30		1.680	0.200	0.030	0.005K	0.015
74/03/10	11 05		1.440	1.400	0.045	0.010	0.060
74/03/23	09 10		1.900	0.200	0.005	0.010	0.020
74/04/07	08 30		2.200	0.300	0.030	0.010	0.025

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/03

420101
40 59 20.0 077 42 50.0
BULLIT RUN
42 7.5 MINGOVILLE
T/BLANCHARD RES
US HWY 220 BRDG
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/05/14	09 30		0.045	0.720	0.036	0.006	0.015
73/06/10	08 30		0.054	0.840	0.052	0.009	0.020
73/07/15	08 55		0.240	2.000	0.090	0.008	0.022
73/08/12	08 35		0.023	0.540	0.297	0.011	0.015
73/09/09	10 10		0.085	0.950	0.056	0.012	0.015
73/10/14	11 25		0.010K	0.400	0.037	0.010	0.010
73/11/11	09 30		0.044	0.450	0.016	0.005K	0.005K
73/12/16	09 20		0.176	0.200	0.020	0.012	0.012
74/01/06	09 25		0.160	0.100K	0.012	0.008	0.010
74/02/10	09 45		0.116	0.300	0.022	0.005K	0.005K
74/02/23	10 35		0.200	0.800	0.042	0.005K	0.025
74/03/10	11 15		0.132	0.900	0.130	0.010	0.045
74/03/23	09 20		0.092	0.600	0.025	0.005	0.010
74/04/07	08 45		0.088	0.600	0.030	0.010	0.015

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/03

34

4201AA PD4201AA P002000
40 56 09.0 077 48 28.0
BALD EAGLE (WINGATE)
42079 7.5 BELLEFONTE
T/BLANCHARD RESERVOIR
BALD EAGLE CREEK
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 4-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/08/14	08 00		0.020	2.000	0.069	3.020	3.700	0.010	0.012
73/09/10	09 00		0.168	3.500	0.270	2.300	2.800	0.015	0.014
73/11/16	09 15		2.700	4.700	0.130	4.400	5.100	0.019	0.018
73/12/17	09 30		3.500	5.650	0.011	4.600	4.950	0.018	0.015
74/01/14	10 30		7.800	3.300	0.140	3.800	4.200	0.015	0.017
74/03/19	08 30		1.560	1.100	0.120	1.250	1.400	0.019	0.014
74/04/19	09 00		0.960	2.700	0.050	0.540	0.930	0.013	0.013
74/05/15	09 00		0.320	5.600		1.850	2.600	0.013	0.015
74/06/26	08 00		0.160	5.300		2.300	2.800	0.012	0.035
74/08/16	09 30		0.040	4.000		0.050	2.700	0.012	0.013
74/09/13	09 00		2.100	1.100	0.038	2.500	2.600	0.017	0.013
74/10/14	09 30		0.300	1.000	0.050	1.300	1.600	0.014	0.018

STORET RETRIEVAL DATE 75/02/03

4201XA AS4201XA P040000
40 53 00.0 077 48 30.0
PA STATE UNIVERSITY
42 250 HARRISBURG
T/BLANCHARD RESERVOIR
SPRING CREEK/BALD EAGLE CREEK
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/06/18	08	30	15.000	1.540	0.300	5.400	5.500	2.230	2.800
73/06/24	08	30	11.000	0.730	0.490	5.100	5.600	2.820	2.710
73/07/31	08	30	13.400	3.900	0.210	5.500	6.200	2.410	2.390
73/08/31	08	00		0.750			4.600	2.140	2.370
73/09/27	08	30	9.100	8.500	0.043	6.200	6.900	3.530	3.160
73/10/31	08	30	11.000	8.300	0.101	5.700	6.700	4.090	3.480
73/11/30	08	30	14.000	1.650	0.210	5.000	5.700	2.520	3.470
73/12/31	08	30	14.600	2.700	0.180	4.700	5.600	1.080	2.530
74/01/31	08	30	16.000	6.000		5.500	5.800	3.440	2.990
74/02/28	08	30	15.000	4.100	0.600	6.200	6.900	3.500	3.350
74/04/01	08	15	9.600	2.600	0.650	5.200	5.800	3.010	2.810
74/05/01	08	30	10.100	4.500	0.520	5.000	6.300	3.560	3.320
74/05/31	08	30	8.600	5.000	0.250	4.800	5.600	2.340	3.070

STORET RETRIEVAL DATE 75/02/03

4201AH TF4201XH P000700
40 52 33.0 077 47 30.0
SCI AT ROCKVIEW (BELLEFONTE)
42 7.5 BELLEFONTE
T/BLANCHARD RESERVOIR
SPRING CREEK/BALD EAGLE CREEK
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/08/01	09 30		3.300	6.300	0.240	1.680	2.300	0.107	0.070
73/09/06	11 00		4.420	6.600	0.610	1.740	2.400	0.071	0.075
73/10/04	13 30		3.000	8.500	0.960	2.000	2.600	0.061	0.056
73/10/31	10 00		1.050	6.300	1.320	1.600	2.400	0.058	0.059
73/12/03	10 30		2.360	10.500	0.650	1.470	2.400	0.058	0.057
74/01/02	09 30		1.160	9.300	3.300	1.840	2.300	0.059	0.057
74/02/24	10 00		0.480	12.000	5.700	1.850	2.400	0.160	0.158
74/04/01	09 30		0.760	7.700	4.800	1.600	2.100	0.160	0.159
74/06/03	09 30		1.920	16.000	8.800	3.150	4.000	0.159	0.160
74/07/02	08 30		0.320	17.000	8.100	2.100	3.750	0.160	0.159
74/08/05	09 30		0.280	20.000	11.000	2.000	3.000	0.225	0.215
74/09/03	09 30		0.080	20.000	11.150	1.880	3.160	0.259	0.258

STORET RETRIEVAL DATE 75/02/03

4201AL AS4201XC P030000
40 48 25.0 077 50 15.0
SPRING CREEK POLLUTION CONTROL
42 250 HARRISBURG
T/BLANCHARD RESERVOIR
SPRING CREEK / BALD EAGLE CREEK
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/07/31	00	00							
CP(T)-			18.600	0.100K	0.010	9.600	9.800	2.330	2.280
73/08/01	24	00							
73/08/30	00	00							
CP(T)-					0.050	9.700	10.000	2.100	2.160
73/08/30	24	00							
73/09/27	00	00							
CP(T)-			18.400	0.220	0.026	8.025	8.950	2.660	2.580
73/09/27	24	00							
73/10/31	00	00							
CP(T)-			13.000	0.500K	0.086	7.100	7.700	2.520	2.760
73/10/31	24	00							
73/11/29	00	00							
CP(T)-			16.260	0.350	0.110	8.500	8.525	2.300	2.600
73/11/29	24	00							
73/12/31	00	00							
CP(T)-			13.000	1.400	0.050	7.800	8.100	2.680	2.640
73/12/31	24	00							
74/01/31	00	00							
CP(T)-			11.800	1.000K	0.080	5.900	5.900	3.110	2.960
74/01/31	24	00							
74/02/28	00	00							
CP(T)-			12.600	5.500	0.180	6.100	6.400	2.760	2.870
74/02/28	24	00							
74/03/28	00	00							
CP(T)-			15.000	3.600	0.050	7.280	8.100	2.650	2.750
74/03/28	24	00							
74/04/30	00	00							
CP(T)-			8.500	11.000	2.200	6.100	9.100	2.650	3.140
74/04/30	24	00							
74/05/30	00	00							
CP(T)-			15.000	3.800	0.085	7.800	8.600	2.560	2.660
74/05/30	24	00							
74/06/27	00	00							
CP(T)-			17.600	5.100	0.240	7.900	8.600	2.560	2.510
74/06/27	24	00							

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/03

4201AC A54201AC P030000
40 48 25.6 077 50 15.0
SPRING CREEK POLLUTION CONTROL
42 256 HARRISBURG
1/BLANCHARD RESERVOIR
SPRING CREEK / BALD EAGLE CREEK
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
74/07/31 CP(T)- 74/07/31	00 00 24 00		14.400	2.700	0.100	6.800	7.200	2.270	2.360

STORET RETRIEVAL DATE 75/02/03

42012A AS42012A P001200
40 44 00.0 077 53 03.0
PINE GROVE MILLS TREATMENT PLANT
42 250/HARRISBURG
1/BLANCHARD RESERVOIR
SLAB CABIN CREEK/SPRING CR/BALD EAGLE CR
11PALES 2141204
0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/08/16	09 30		14.000		0.170	12.400		0.022	0.023
73/09/17	11 00		0.058	11.000	0.11R	10.950	11.000	0.023	0.024
73/10/17	10 30		15.600	0.600	0.130	14.700	15.150	0.023	0.023
73/11/20	16 00		19.200	0.500K	0.120	13.800	14.250	0.027	0.024
73/12/19	23 00		25.400	2.400	1.240	11.200	11.500	0.029	0.024
74/01/16	10 45		21.000	4.700		10.600	10.600	0.035	0.028
74/02/21	10 00		8.700	5.400	1.350	9.700	10.000	0.029	0.030
74/03/19	10 00		20.250	6.000	1.800	9.350	10.630	0.031	0.030
74/04/20	10 00		14.300	2.200	0.190	8.600	10.000	0.041	0.030
74/05/20	11 00		13.000	1.700	0.110	8.900	9.500	0.030	0.035
74/06/20	10 30		11.200	2.500	0.090	9.000	9.500	0.027	0.025
74/07/17	10 30		3.275	1.000K	0.050K	10.000	11.000	0.027	0.027
74/08/26	09 35		22.000	8.400	3.250	11.000	13.000	0.023	0.025

K VALUE KNOWN TO BE
LESS THAN INDICATED

39